Glossary - Solar System Module

Accretion – Gradual growth of bodies, such as planets, by the accumulation of other smaller bodies.

Arachnoids – Volcanic-tectonic features on Venus that have a radial set of fractures superimposed on a concentric set of fractures, giving them a spider-like appearance.

Asteroid – A small, rocky planetary body orbiting the sun.

Asteroid belt – The region between the orbits of Mars and Jupiter where most asteroids are found.

Astronomical unit – (AU) The mean distance from the earth to the sun, approximately 150 million km.

Astronomy – Branch of science dedicated to the study of everything in the universe that lies above the earth's atmosphere.

Atmosphere – The mixture of gases surrounding a planet or moon.

Axis – An imaginary straight line about which a body rotates.

Barred-spiral galaxy – Spiral galaxy in which a bar of material passes through the center of the galaxy, with the spiral arms beginning near the ends of the bar.

Big Bang – Event that cosmologists consider the beginning of the universe, in which all matter and radiation in the entire universe came into being.

Caldera – A large circular depression or basin associated with a volcanic vent. Its diameter is many times greater than that of the included vents.

Comet – A small body composed mainly of ice and dust that revolves around the sun in an elliptical orbit. As it approaches the sun, some of its material is vaporized to form a gaseous head and extended tail.

Comparative planetology – Comparing and contrasting the properties of the nine planets to better understand the condition under which the planets formed and developed.

Coronae – Elliptical, strongly deformed systems of concentric fractures and ridges surrounding a central plain that are found on Venus and Miranda.

Ecliptic – The imaginary plane on which the earth and most of the other planets orbit the sun.

Elliptical galaxy – Category of galaxy in which the stars are distributed in an elliptical shape on the sky.

Galactic bulge – Thick distribution of warm gas and stars around the center of a galaxy.

Galactic disk – Flattened region of gas and dust that bisects the galactic halo in a spiral galaxy. It is the region of active star formation.

Galactic halo – Region of a galaxy extending far above and below the galactic disk, where globular clusters and other old stars reside.

Galaxy – Gravitationally bound collection of a large number of stars. The sun is a star in the Milky Way galaxy.

Galilean moons – The four brightest and largest moons of Jupiter - Io, Ganymede, Callisto, and Europa. Named after Galileo Galilei, the person who first observed them in the 17^{th} century.

Geyser – A thermal spring that intermittently erupts steam and boiling water.
Gravitational slingshot – Mechanism for transferring energy from the orbit of a planet to a passing satellite. Some of the planet's momentum is transferred to the spacecraft as it passes by during a close approach.
Great Dark Spot – Prominent storm system in the atmosphere of Neptune, located near the equator and nearly the size of Earth.
Great Red Spot – A large, high-pressure, long-lived storm system visible in the atmosphere of Jupiter.
Greenhouse effect – The partial trapping of solar radiation by a planetary atmosphere.
Impact crater – A depression on a planetary surface formed by the impact of an unspecified projectile.
Intercrater plains – Regions on the surface of Mercury that do not show extensive cratering, but are relatively smooth.
Intergalactic space – The virtual void that exists between individual galaxies and galaxy clusters in the universe.
Interplanetary space – The space between the objects in the solar system.
Irregular galaxy – A galaxy that does not fit into any of the other major categories of galaxy classification.
Jovian planets – The four giant outer planets of the solar system that resemble Jupiter in physical and chemical composition (Jupiter, Saturn, Uranus, and Neptune).
Kuiper Belt – A ring of small celestial bodies orbiting through the outer solar system, beyond the farthest planets, Neptune and Pluto. It is believed that the Kuiper belt is a source of comets.
Light-year – The distance light, moving at a constant speed of 300, 000 km/s or 186,000 miles/s, travels in one year. One light year is 9.46 trillion km.
Local Group – The galaxy cluster that includes the Milky Way.
Magnetic field – The field that accompanies a changing electric field and governs the influence of magnetized objects on one another.
Mare – The relatively smooth, low, dark areas of the moon. They were formed by the extrusion of floods of basaltic lava.
Mass – The amount of matter an object has.
Meteor – The visible streak of light that results from a solid particle from space entering the atmosphere. Also called a shooting star.
Meteorite – A rock from space that has survived its passage through the atmosphere to land on the earth's surface.
Moon – A natural satellite of one of the nine planets in the solar system.
Nebula – A body of gas and dust residing within a galaxy. Some nebulas are the birthplaces of stars and planets.
Novae – A volcano-tectonic feature on the surface of Venus that has prominent radial fracture patterns that commonly appear as starburst patterns on radar images.
Olympus Mons – The largest volcano in the solar system. It is a shield volcano that is 26 km high and 550 km across. However it is essentially as flat as a pancake with slopes between 2°-5°.

Oort cloud – An immense spherical cloud where long-period comets reside. It surrounds the planetary system and extends approximately 3 light years, 30 trillion kilometers, from the sun.

Orbit – The path followed by one body in its revolution about another. Determined by gravitational interactions. Planetary orbits range from circular to extremely elliptical.

Outflow channels – Large channels on Mars thought to be created by catastrophic floods of water released from below the surface of the planet.

Patera – Pertains to low profile volcanoes found on Mars and Io.

Patterned ground – Distinctive geometric patterns created by alternate freeze-thaw processes. Polygonal patterns of cracks are one type of patterned ground found in Earth's polar regions and in high latitude regions of Mars.

Permafrost – Permanently frozen ground.

Planet – A relatively large body that orbits a star and does not produce its own light.

Planetesimal – Small solid bodies from which the planets accreted.

Plate tectonics – The theory of planetary dynamics in which the lithosphere is broken into individual plates that participate in convection of the upper mantle. The lithosphere is created and destroyed by recycling back into the mantle.

Protostar – A forming star, before nuclear fusion starts.

Radar – A technique for observing distant objects that uses reflected radio waves.

Remote sensing – The collection of information by a recording device that is not in physical contact with it its objective. The technique employs such devices as the camera, infrared detectors, microwave frequency receivers, and radar and laser systems.

Retrograde motion – An orbital or spin direction opposite to most bodies in the solar system. As viewed from the north, most planets and satellites move in a counterclockwise direction; retrograde motion would be clockwise rotation, or revolution.

Revolution – The orbital motion of one body around another.

Rille – An elongate trench, or crack like valley on the Moon's surface. Rilles can be sinuous or linear structural depressions.

Rotation – Spinning of a body about an axis running through it.

Satellite – A planetary body that orbits about a larger one.

Shield volcano – A broad, gently sloping volcanic edifice of flat domical shape, usually several tens or hundreds of square miles in extent, built mainly of overlapping and interfingering basaltic lava flows**.**

Solar system – The system that includes the Sun, planets, moons, asteroids, comets, and other objects that orbit the Sun.

Spiral galaxy – Galaxy composed of a flattened, star forming disk component which may have spiral arms and a large central galactic bulge.

Star – A glowing ball of gas held together by its own gravity and powered by nuclear fusion at its center.

Sublimation – The process by which a material changes from a solid directly to a gas without passing to a liquid.

Sun – A medium sized yellow star that formed from the collapse of a nebula and the planets orbit due to its strong gravitational pull.

Synchronous rotation – The rotation of a satellite or planet that has equal orbital and rotational periods; 1:1 spin-orbit coupling.

Terminator – The line separating the sunlit side from the dark hemisphere of a planetary object.

Terrestrial planets – The planets most like Earth, with lithospheres of silicate minerals. These are Earth, Mercury, Venus, the Moon, and Mars.

Tessera – Terrains on Venus that have been intensely modified by tectonic processes, and consist of interlacing ridges and valleys.

Universe – The totality of all space, time, matter, and energy.

Vallis Marineris – Mars' largest canyon system. The entire system extends over 4000 km (2490 mi), covering about one fifth the circumference of Mars. Some parts of the canyon run as deep as 7 km (4 mi) and as wide as 200 km (125 mi). Compared to Valles Marineris, the Grand Canyon on Earth seems quite small at 446 km (277 mi) long, 30 km (18 mi) wide and 1.6 km (1 mi) deep. If Valles Marineris were placed on the surface of Earth, it would stretch from Los Angeles to the Atlantic coast.